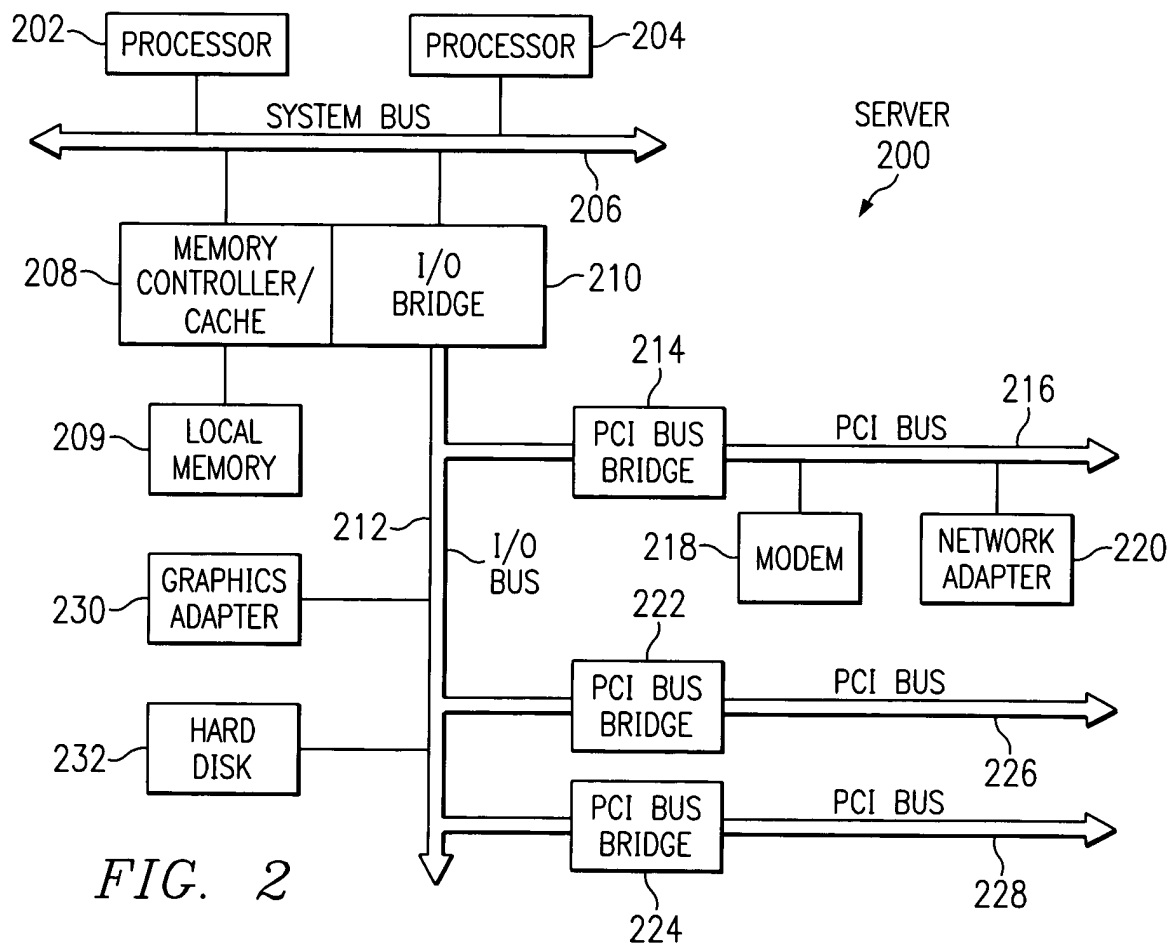10/611,609
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100

104

102

108

110

106

112

*FIG. 1*



202 PROCESSOR    PROCESSOR 204

SYSTEM BUS

SERVER
200

206

208 MEMORY CONTROLLER/ CACHE    I/O BRIDGE 210

209 LOCAL MEMORY

214 PCI BUS BRIDGE    PCI BUS 216

212 I/O BUS

218 MODEM    NETWORK ADAPTER 220

230 GRAPHICS ADAPTER

222 PCI BUS BRIDGE    PCI BUS

232 HARD DISK

226

224 PCI BUS BRIDGE    PCI BUS

228

*FIG. 2*

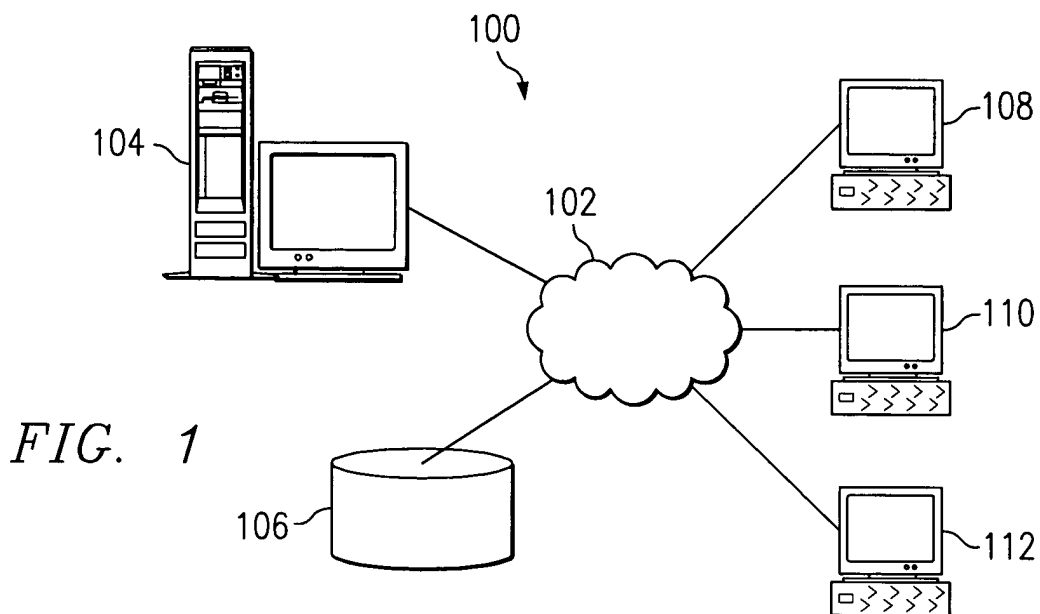10/611,609
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CLIENT
300

PROCESSOR ~302

HOST/PCI
CACHE/BRIDGE ~308

MAIN
MEMORY ~304

AUDIO
ADAPTER ~316

BUS ~306

LAN
ADAPTER ~310

EXPANSION
BUS
INTERFACE ~314

GRAPHICS
ADAPTER ~318

AUDIO/VIDEO
ADAPTER ~319

KEYBOARD AND
MOUSE ADAPTER ~320

MODEM ~322

MEMORY ~324

SCSI HOST
BUS ADAPTER ~312

DISK ~326

TAPE ~328

CD-ROM ~330

DVD ~332

*FIG. 3*

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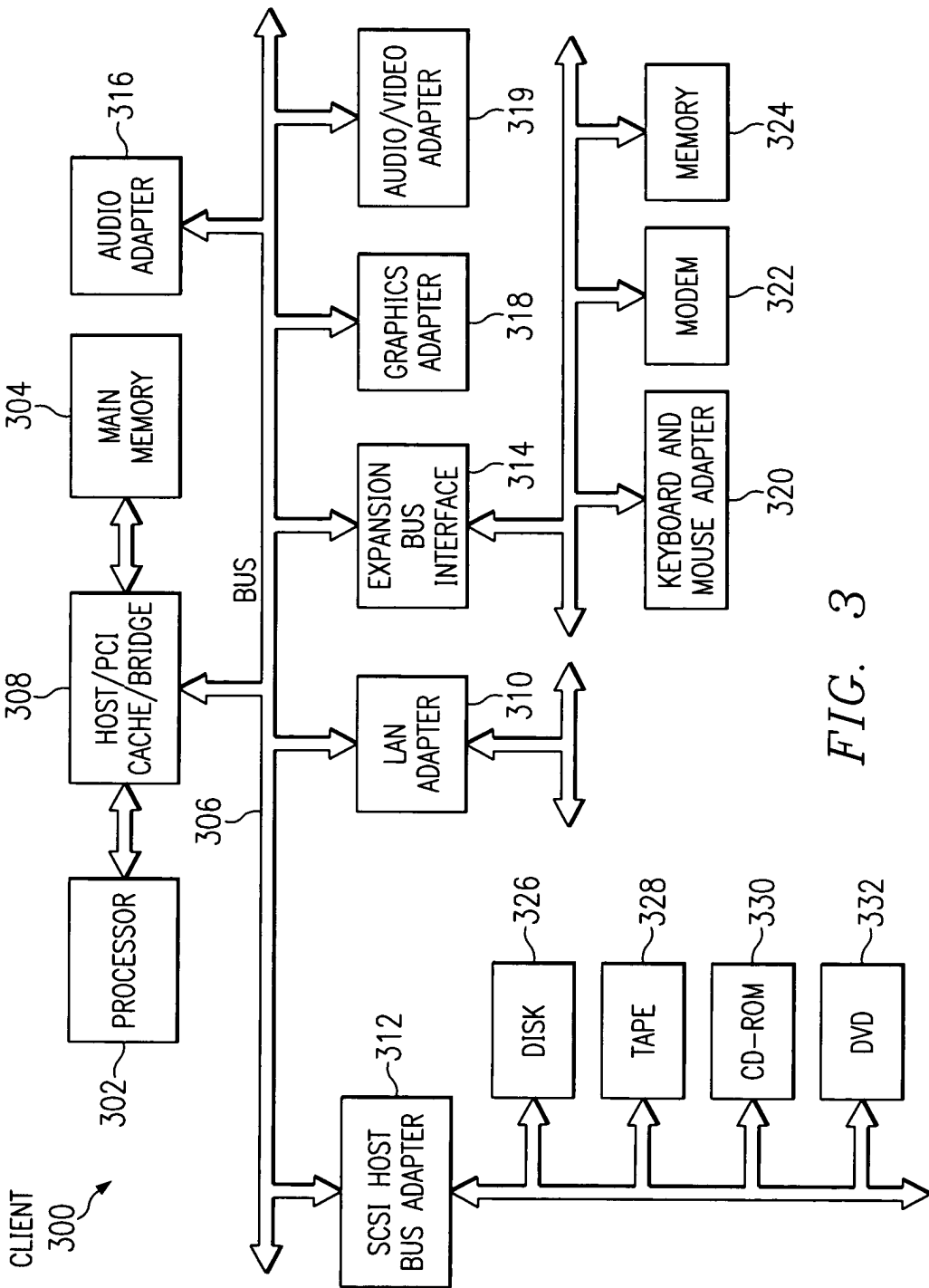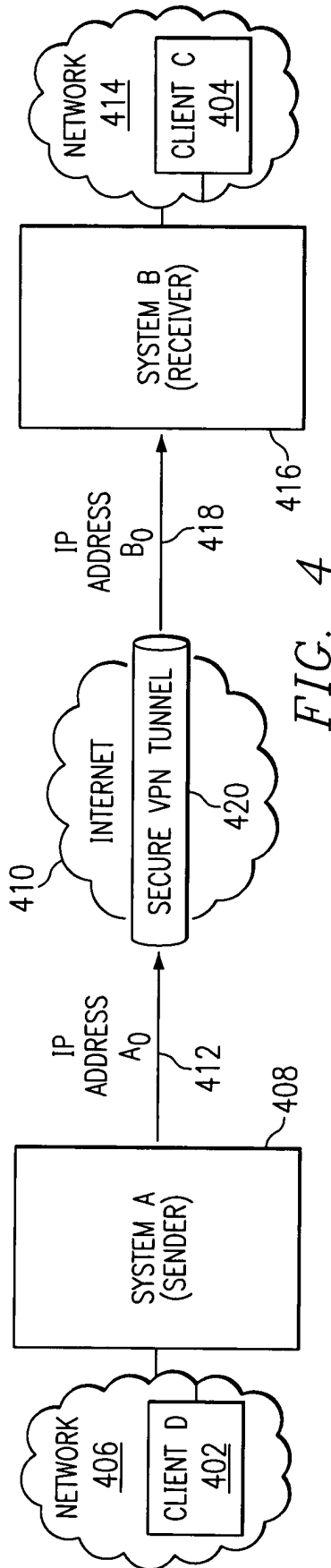Address-Evading Network Snoop Avoider

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*FIG. 4*



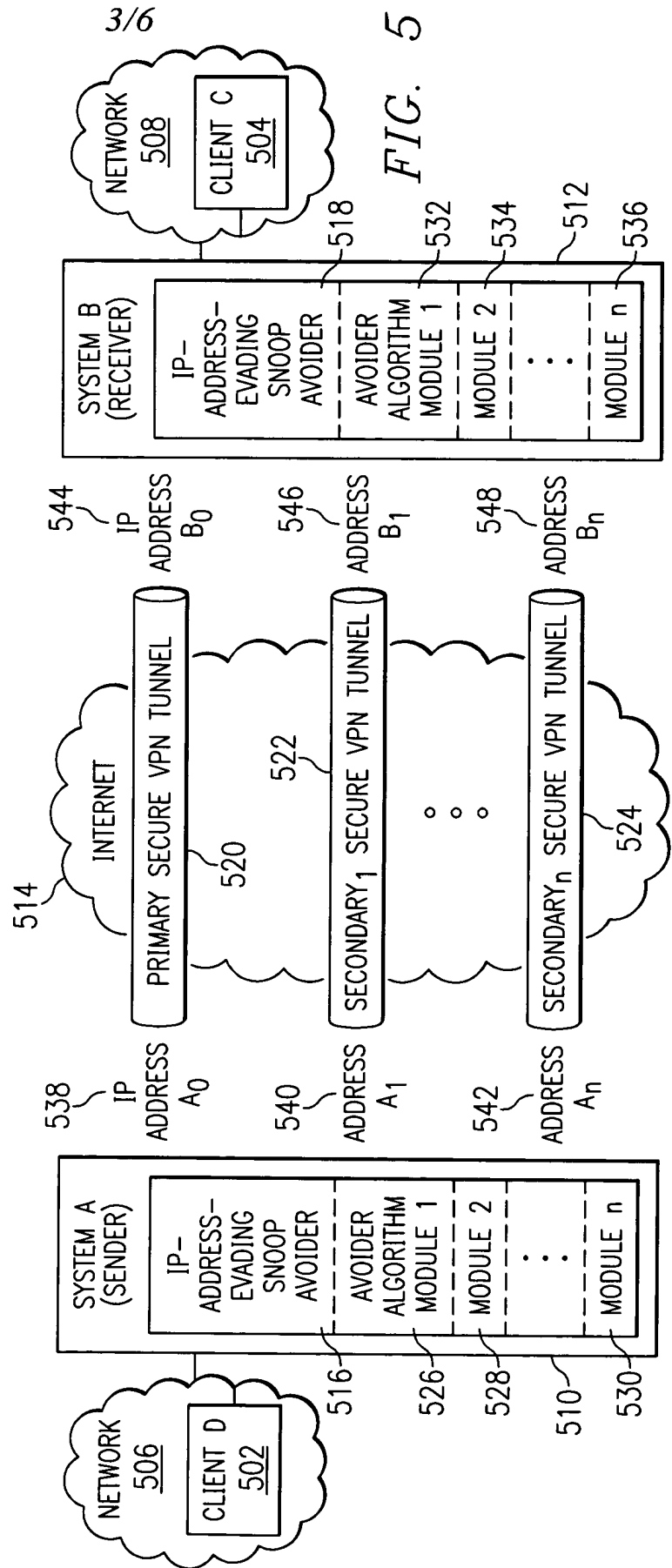*FIG. 5*

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*FIG. 6*

BEGIN

ACTIVATE PRIMARY VPN TUNNEL — 602

604 — IS AVOIDER ALGORITHM 1 ACTIVE?

— YES → ACTIVATE SECONDARY$_1$ VPN — 606

NO ↓

614 — IS AVOIDER ALGORITHM 2 ACTIVE?

— YES → ACTIVATE SECONDARY$_2$ VPN — 616

NO ↓

624 — IS AVOIDER ALGORITHM n ACTIVE?

— YES → ACTIVATE SECONDARY$_n$ VPN — 626

NO ↓

HANDSHAKE WITH PEER — 628

COMMUNICATE ON SECONDARY$_n$ VPN — 630

DEACTIVATE OLD TUNNEL — 632

HANDSHAKE WITH PEER — 618

COMMUNICATE ON SECONDARY$_2$ VPN — 620

DEACTIVATE OLD TUNNEL — 622

HANDSHAKE WITH PEER — 608

COMMUNICATE ON SECONDARY$_1$ VPN — 610

DEACTIVATE OLD TUNNEL — 612

CONTINUE INTERNET IP ADDRESS EVASION? — 634

YES

NO ↓

END
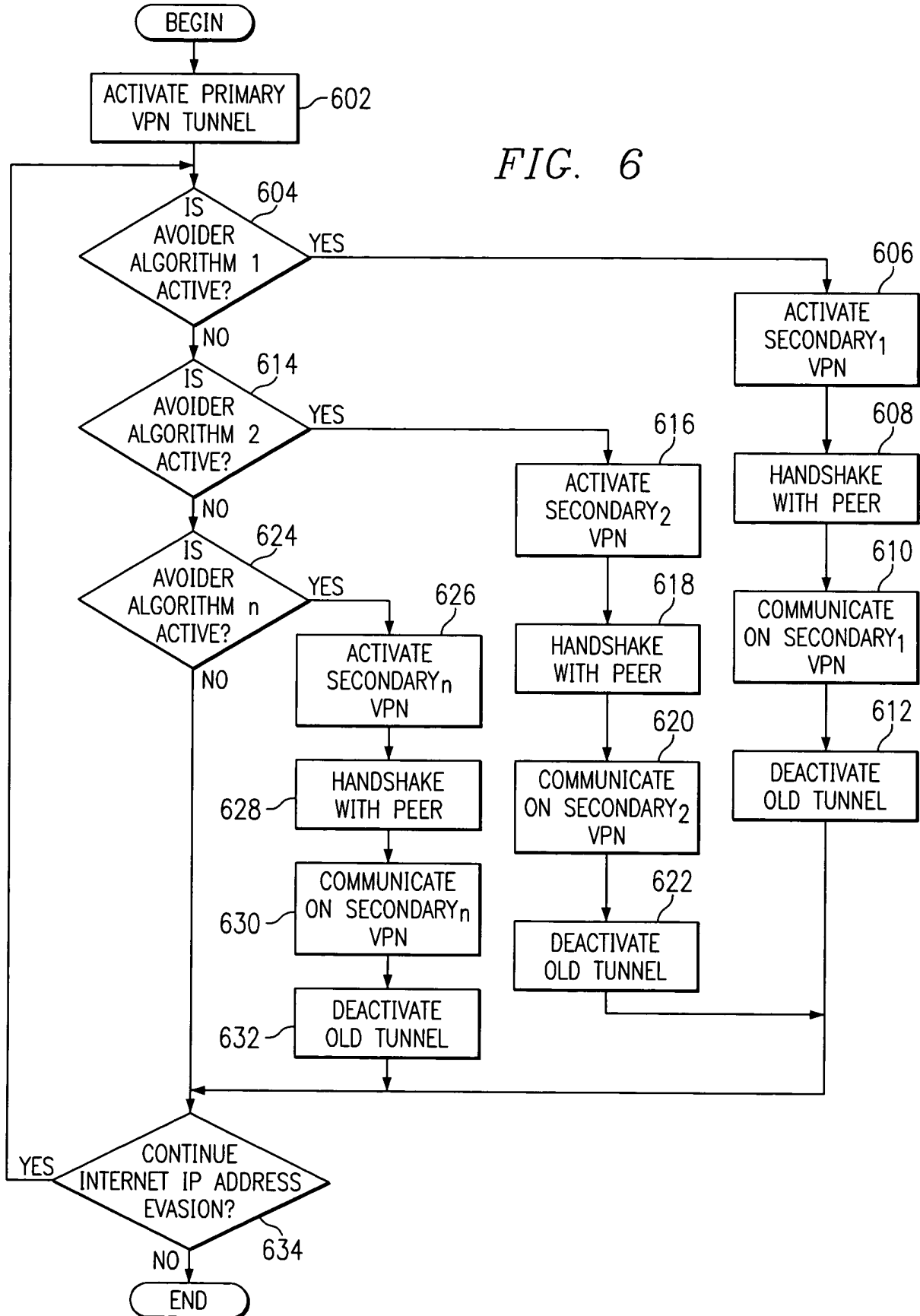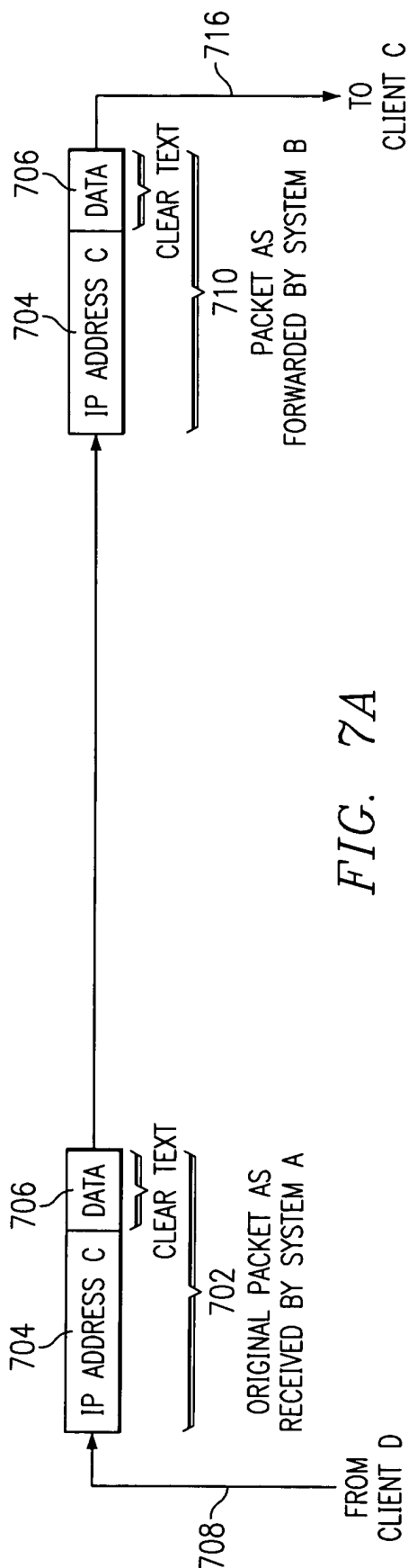
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**FIG. 7A**

FROM
CLIENT D

IP ADDRESS C | DATA
704 | 706
CLEAR TEXT
702
ORIGINAL PACKET AS
RECEIVED BY SYSTEM A

IP ADDRESS C | DATA
704 | 706
CLEAR TEXT
710
PACKET AS
FORWARDED BY SYSTEM B

716

TO
CLIENT C

708

**FIG. 7B**

FROM
CLIENT D

IP ADDRESS C | DATA
704 | 706
CLEAR TEXT
702
ORIGINAL PACKET AS
RECEIVED BY SYSTEM A

IP ADDRESS $B_0$ | IP ADDRESS C | DATA
722 | 704 | 706
724
ENCRYPTED
ORIGINAL PACKET
720
SECURE PACKET AS FORWARDED BY
SYSTEM A USING PRIMARY VPN

IP ADDRESS C | DATA
704 | 706
CLEAR TEXT
710
PACKET AS
FORWARDED BY SYSTEM B

716

TO
CLIENT C

708

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Method and System for Algorithm-Based
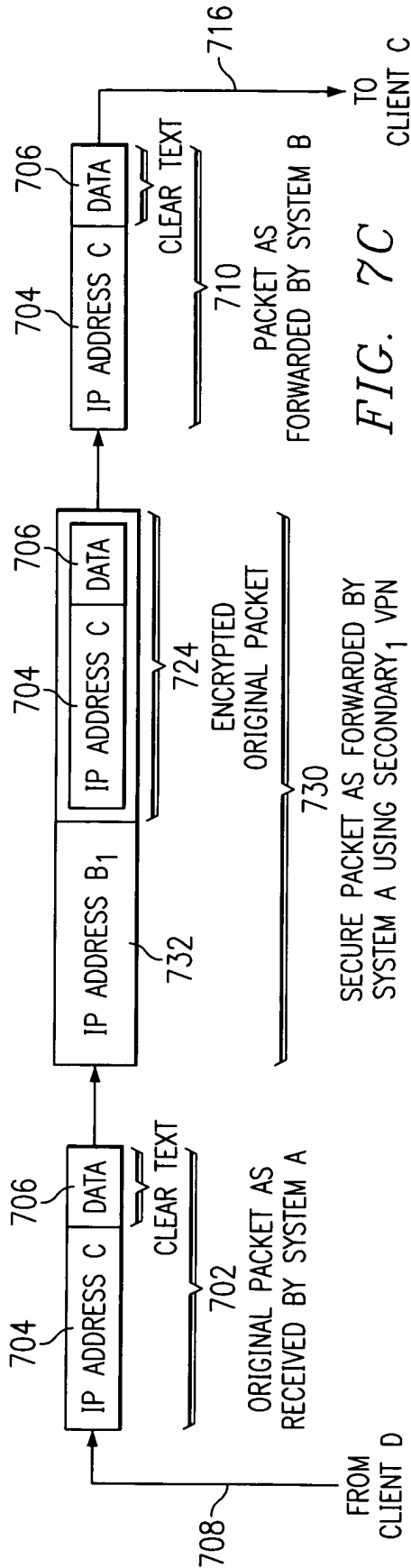Address-Evading Network Snoop Avoider

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**FIG. 7C**

708

FROM CLIENT D

704 706
IP ADDRESS C | DATA
CLEAR TEXT
702
ORIGINAL PACKET AS RECEIVED BY SYSTEM A

704 706
IP ADDRESS $B_1$ | IP ADDRESS C | DATA
732 724
ENCRYPTED ORIGINAL PACKET
730
SECURE PACKET AS FORWARDED BY SYSTEM A USING $SECONDARY_1$ VPN

716
704 706
IP ADDRESS C | DATA
CLEAR TEXT
710
PACKET AS FORWARDED BY SYSTEM B

TO CLIENT C

**FIG. 7D**

708

FROM CLIENT D

704 706
IP ADDRESS C | DATA
CLEAR TEXT
702
ORIGINAL PACKET AS RECEIVED BY SYSTEM A

704 706
IP ADDRESS $B_2$ | IP ADDRESS C | DATA
742 724
ENCRYPTED ORIGINAL PACKET
740
SECURE PACKET AS FORWARDED BY SYSTEM A USING $SECONDARY_2$ VPN

716
704 706
IP ADDRESS C | DATA
CLEAR TEXT
710
PACKET AS FORWARDED BY SYSTEM B

TO CLIENT C

**FIG. 8**

SNOOP AVOIDER ALGORITHM--EXAMPLE

802 — IP ADDRESS A1 = 1.2.3.4 (VPN TUNNEL ENDPOINT DEFINED FOR SYSTEM A)
804 — IP ADDRESS B1 = 5.6.7.8 (VPN TUNNEL ENDPOINT DEFINED FOR SYSTEM B)

SUM OF THIRD OCTETS OF VPN ENDPOINT IP ADDRESSES = (3+7)=10

806 — MAXIMUM QUANTITY OF PACKETS OVER CURRENT SECONDARY VPN = (3+7) * 1K=10K PACKETS